

REMARKS

This communication is in response to the Office Action mailed on July 28, 2003. In the Office Action claims 84-112 were pending on which claims 93-99 were allowed; claims 84-92, 100-103, and 106-112 were rejected; and claims 104-105 were objected to as being dependent on a rejected claim.

The Office Action reports that independent claims 100 and 106 were rejected under 35 U.S.C. §102 as being anticipated by WO 93/21492 to Patchett (hereinafter "Patchett"). The Office Action states that Patchett discloses a sheet material suitable for use in body armor comprising a flexible layer and a layer of discrete plates. Three flexible layers and three layers of rigid plates can be used in a multi-layer arrangement. Additionally, the Office Action reports that claim 100 was rejected under 35 U.S.C. §102 as being anticipated U.S. Patent No. 1,758,296 to Schaumann (hereinafter "Schaumann"). The Office Action states that Schaumann discloses three flexible layers with a plurality of non-overlapping plates attached to their surfaces.

Claim 100 has been amended to recite a fabric assembly comprising a first flexible substrate having a first plurality of continuous, non-overlapping plates affixed to a top surface of the first flexible substrate; a second flexible substrate having a second plurality of continuous, non-overlapping plates affixed to a top surface of the second flexible substrate; and a third flexible substrate having a third plurality of continuous, non-overlapping plates affixed to a top surface of the third flexible substrate, wherein the flexible substrates are arranged in a stack, and wherein each plurality of plates is arrayed in a pattern such that a plurality of approximately linear gaps are defined between adjacent affixed plates, wherein each substrate is capable of movement relative to the other substrates, wherein each gap is approximately uniform in width in the range of about

5 mils to 20 mils, and wherein each plate has an approximately uniform thickness in the range of 5 to 20 mils. [emphasis added]

Regarding Patchett, it is submitted that claim 100 is patentably distinct from the assembly disclosed in Patchett. Patchett discloses a plurality of interlocking plates affixed to a substrate. However, the gaps between the interlocking plates are not linear as in claim 100. Further, Patchett explicitly teaches that each side of each plate "has either a wasted projection or a re-entrant recess configured so that a projection from one side of a plate interfits in an interlocking manner in the recess of an adjacent plate, whereby the extent to which adjacent plates can be separated is limited." [page 3, lines 30-34] Thus, it is submitted that the gaps in Patchett are curved and not linear; and further, that Patchett teaches away from linear gaps by teaching the projections and recesses (which are curved) interfit to limit the separation of plates.

Regarding Schaumann, it is submitted that claim 100 is patentably distinct from the assembly disclosed in Schaumann. It is respectfully submitted that Schaumann discloses a multi-layer structure where gaps between plates are not approximately linear nor uniform in width. The plates on one substrate are spaced as much as one plate width apart from an adjacent plate in the horizontal and vertical directions. The diagonal gap between the corners of adjacent plates is much smaller. A plate affixed to another substrate superimposed on the first substrate is designed to fill in the one-plate width gap in the first substrate. In contrast, in claim 1, the gap widths are "approximately uniform in width in the range of about 5 mils to 20 mils". Also, in claim 100, each substrate layer is capable of movement relative to the other substrates. This is not the case in Schaumann where the substrate layers must remain fixed relative to one another in order to maintain its puncture resistant properties.

In light of the foregoing, it is respectfully submitted that claim 100 is patentable over the cited art. Minor amendments to claims 101-102 were made to conform with the amendment to claim 100. Claims 101-103 depend on claim 100 and are believed to be separately patentable. Reconsideration and allowance of claims 100- 103 are respectfully requested.

The Office Action next reports that claims 106-111 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,196,252 to Harpell (hereinafter "Harpell") The Office Action also previously reports that claim 106 was rejected as unpatentable over Patchett. The Office Action states that Patchett discloses two layers of plates joined to opposing sides of a flexible substrate and that the flexible layer can be a laminate comprising different materials, so there would be two flexible substrates present.

Claim 106 has been amended and recites, a fabric assembly comprising a first flexible substrate having a first plurality of plates affixed to a top surface of the first flexible substrate; and a second flexible substrate having a second plurality of plates affixed to a bottom surface of the second flexible substrate, wherein the first and second flexible substrates are arranged in a stack, the first and second pluralities of plates opposite facing, wherein each plurality of plates is arrayed in a pattern such that a plurality of approximately linear gaps are defined between adjacent affixed plates, each plate being continuous and non-overlapping, and wherein each gap is approximately uniform in width in the range of about 5 mils to 20 mils. [emphasis added]

Regarding Patchett, the above remarks as to Patchett are incorporated by reference. In contrast, claim 106 defines gaps that are approximately linear and uniform in width in the range of 5 to 20 mils. Patchett does not show, teach or suggest these features.

Regarding Harpell, Harpell discloses a ballistic resistant fabric that has layers of fabric with attached planar bodies or plates. However, Harpell explicitly states that, "As depicted in the Figures, article 10 preferably [has] at least two layers 14. In these preferred embodiments; layer 14 of layer 14 is partially covered with planar bodies 16 forming an alternating patterns of covered areas 28 and uncovered areas 30." [Col. 16, lines 58-62, emphasis added] Thus, it is submitted that the uncovered areas 30 or "gaps" are not approximately linear and uniform in width as featured in claim 106.

Further, claim 106 recites a gap width that ranges from 5 to 20 mils, which is relatively narrow. Harpell teaches that "[a]t least one other layer 14 (preferably adjacent) also includes a layer 14 partially covered with planar bodies forming covered areas 28 and uncovered areas 30 of layer 14 such that uncovered areas 30 of one layer 14 completely correspond to covered areas 30 of another layer 14 and vice versa." [Col. 16, lines 62-68] Thus, it is submitted that Harpell teaches away narrow gaps between adjacent plates on one substrate because another layer of plates attached to another substrate 14 is designed to cover the uncovered areas on the first substrate, perhaps for flexibility.

Finally, Harpell discloses a plurality of holes on apertures or eyes 24 for stitching each planar body to a surface of layers 14. In contrast, the plates in claim 106 are continuous, and therefore, without apertures.

In light of the foregoing, it is respectfully submitted that claim 106 is patentable over the cited art. Claims 107-111 depend on claim 106 and are believed to be separately patentable. Claim 112 has been cancelled. Reconsideration and allowance of claims 106-111 are respectfully requested.

The Office Action reports that claims 84-86 and 90-91 were rejected under 35 U.S.C. §103(a) as being unpatentable over

Patchett in view of U.S. Patent No. 5,953,751 to Kobren (hereinafter "Kobren"). It is respectfully submitted that there is no suggestion to combine Patchett and Kobren or the various cited combinations below; that one skilled in the art would not combine the teachings of Patchett and Kobren; and even when combined, the combination does not disclose all the features of claim 84.

Claim 84 is independent and recites a fabric assembly comprising having a top surface; and a plurality of continuous, non-overlapping and approximately identical metal plates having substantially uniform thickness of approximately 2 to 5 mils, the plurality of metal plates affixed to the top surface of the flexible substrate and arrayed in a pattern such that a plurality of approximately linear gaps are defined between adjacent affixed plates, wherein the gaps are approximately uniform in width, and wherein the gap width is approximately 2 to 5 mils. [emphasis added].

Remarks as to Patchett are herein incorporated by reference. Patchett discloses a plurality of plates the fit together like a jigsaw puzzle. [page 2, lines 24-28] As discussed above the gaps between plates are curved, not approximately linear as in claim 84. Also, Patchett apparently teaches away from linear gaps as discussed previously.

Further, the gaps 31 in between circular discs 30 used in Kobren's medical gloves may be between 0.1 mm and 0.2 mm. However, this dimension is so narrow that if used in between the interlocking plates of Patchett's body armor would result in the plates being unable to move relative to one another. Patchett, however, indicates that the plates must accommodate tilting of one plate relative to another. [page 9, lines 27-32] Thus, it is submitted that one skilled in the art would not combine the plates of Patchett with the gap width in Kobren.

Also, Kobren may use metal in relatively large plates 14a

to 18c that are molded for the fingers of a user [see Col. 1, lines 54-58]. However, metal plates 14a to 18c are not approximately identical as in claim 84 because plates 14a to 18c are sized to fit different fingers; and therefore, the plates necessarily are of varying dimensions. Also, Kobren provides that the discs 30 (or protrusions) and webbing material as being "formed as an integral plastic molded sheet." [see Col. 2, lines 60-61]. Thus, it is submitted using metal for discs 30 is not shown, taught or suggested in Kobren. Further, discs 30 are not affixed to the top surface of a flexible substrate as in claim 84 because the discs 30 in FIG. 6 are illustrated as flat discs lying on top of stems 34. The stems 34 are affixed to the substrate, not discs 30. Finally, the gaps 31 between discs 30 are not approximately linear as in claim 84 because the discs are circular, not polygonal.

In light of the foregoing, it is respectfully submitted that claim 84 is patentable over the combination of Patchett and Kobren. Claims 85-86 and 90-91 depend on claim 84 and are believed to be separately patentable. Reconsideration and allowance of claims 84-86 and 90-91 are respectfully requested. Further, claim 92 depends on claim 84 and is likewise believed to be patentable at least for the above reasons. The Office Action addressed claim 92 in an obviousness rejection below.

The Office Action next reports that claims 87-88 and 101-103 were rejected under 35 U.S.C. §103(a) as being unpatentable over Patchett in view of Kobren and further in view of U.S. Patent No. 5,601,895 to Cunningham (hereinafter "Cunningham"). As stated above, it is submitted that claim 84 is patentable over the combination of Patchett and Kobren because the combination does not teach, show, or suggest all the limitations of claim 84 on which claims 87-88 depend. This is true even if the hexagonal plates of Cunningham are combined with Patchett and Kobren. Thus, claim 87 is believed to be patentable over the cited art. Claim 88

has been cancelled. Reconsideration and allowance of claim 87 are respectfully requested.

The Office Action also applied the cited combination against claims 101-103, which depend on amended claim 100. Claims 100-103 have been addressed above regarding Patchett. Kobren has been discussed above regarding claim 84 and those remarks are incorporated herein. Kobren does not apparently include at least the features of approximately linear gaps that are approximately uniform in width in the range of 5 to 20 mils. Kobren also does not include a multi-layer structure of pluralities of plates being affixed to substrates where each substrate is capable of movement relative to the other substrates as in claim 100. Thus, it is respectfully asserted that the cited combination does not show, teach or suggest all the features of independent claim 100. In light of the foregoing, claims 101-103 are believed to be patentable over the cited combination. Favorable action on claims 101-103 is respectfully requested.

The Office Action next reports that claim 89 is rejected under 35 U.S.C. §103(a) as being unpatentable over Patchett in view of Kobren and further in view of U.S. Patent No. 5,156,900 to Nishimura (hereinafter "Nishimura"). Claim 92 was similarly rejected under 35 U.S.C. §103(a) as being unpatentable over Patchett in view of Kobren and further in view of U.S. Patent No. 4,861,666 to LeGrand (hereinafter "LeGrand"). It is noted that the Office Action has not indicated the suggestion to combine Patchett, Kobren, and Nishimura against claim 89 nor the suggestion to combine Patchett, Kobren and LeGrand against claim 92. Thus, it is respectfully requested that these rejections be withdrawn.

Moreover, claims 89 and 92 depend on claim 84, which has been amended and discussed above. Therefore, it is respectfully asserted that the cited combination of Patchett and Kobren do not teach, show, or suggest all the features of claim 84, even when

Nishimura (synthetic leather) or LeGrand (adhesive laminates) is added to the combination. In light of the foregoing, it is submitted that claims 89 and 92, which both depend on claim 84, are patentable over the cited combinations. Reconsideration and allowance of claims 89 and 92 are respectfully requested.

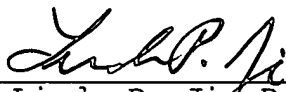
The Office Action next reports that claim 112 is rejected under 35 U.S.C. §103(a) as being unpatentable over Harpell. Claim 112 has been cancelled and its subject matter combined with amended independent claim 106.

The Office Action indicated that claims 93-99 were allowed and that claims 104 and 105 were objected to as being dependent upon a rejected base claim but would be allowable if rewritten in independent or including all of the limitations of the base claim and any intervening claims. Claim 104 has been so amended and is now independent. Claim 105 depends on claims 104 and is unchanged. Claims 104 and 105 are presented for favorable action.

The Director is authorized to charge any fee deficiency required by this paper or credit any overpayment to Deposit Account No. 23-1123.

Respectfully submitted,

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